2009 WSDA Crop Distribution Geodatabase Directions

The following document explains how to use the 2009 Crop Distribution Geodatabase. ***It is very important to read as there are some use limitations*** described in the spatial analysis section below. The user must understand these to avoid making serious errors.

The geodatabase was created in ArcGIS® 9.3 (by ESRI), so the user must have this version or a newer version to use it in the Arc environment. It can also be opened with Access® if viewing the raw data is desired. It provides crop information at the section level, which is typically one mile square. It consists of a CropSections feature dataset that contains two parts: (1) a SectionsWithCrops feature class that consists of sections of land that contain crops, and (2) a relationship class that has a "one to many" relate between the crop data table and the sections. It also consists of several data tables, including CropData, CountyFIPS, CropGroup, CropType, Irrigation, and Source.

Add the 2009WSDACropDistribution.mdb using the add button (+) or Arc Catalog®; bring both the CropSections feature dataset and CropData table into ArcMap®.

Directions for using identify feature:

The "SectionWithCrops" feature class has a one-to-many relate to the "CropData" table within the personal geodatabase. This allows for the crop data to be viewed in its entirety by using the "SectionsWithCrops" layer when identifying.

1. In ArcMap®, right-click on the CropData table, click on the field tab, set the primary display field to CropType or select the display that works best for the given situation – e.g. Irrigation, Acres, etc.
2. Click on the identify button.
3. Click on a crop section polygon. The attributes for the SectionsWithCrops feature class will be displayed, including the primary, or dominant crop growing in the section.
4. Click the **"+"** that's in front of the "Township/Range/Section" number. This displays the CropData table.
5. Click the **"+"** that's in front of the "CropData" to a list of fields that contain land use attributes in that section. There may be one, or there may be several field records within a section of land.
6. Click on the field records to view their corresponding data.

Directions for viewing crop data table:

1. Right click on "CropData" table in the table of contents window, and select "open" from the popup menu.
2. Data includes crop type (apple, wheat, etc), crop group (orchard, cereal grain, etc.), acres (calculated area of field polygon), irrigation types, township/range/section, county, rotation crops, notes and survey dates. For more information, see the metadata contained within the geodatabase.

Directions for viewing CountyFIPS, CropGroup, CropType, Irrigation, Source tables:

These additional tables were created from the domains, and include clarifications for codes, crop type classifications, irrigation methods, etc.

1. In ArcCatog, click on the table.
2. Click on preview tab.

Directions for querying:

1. Close table if opened. Right click on "CropData" table in table of contents window, and select *properties* from the popup menu.
2. Definition query, then use the query builder (e.g. crop=Apple), OK.
3. Right click on "CropData" table again, and select "open" from the popup menu.
3. Within the table, go to *options*, and then *select all*.
4. Go to *options*, *Related* tables, then "CropSectionRelate: SectionsWithCrops". This may take a couple minutes, depending on the size of the queried table.
5. Highlighted will be all the sections that include your queried item (the geographic locations of the results). You may look at the data in the selected sections with the "identify" button, but keep in mind other field data will be visible using this method. If you want to look at the queried data in the table, right click on

the CropData table and open. You may also export the data table (using the *options* menu) and open it with Excel® or Access® to do calculations.

6. If you want to create a new layer generated from the queried results, perform the following while the selection is still highlighted:
    a. Right click on the "SectionsWithCrops" feature class in the table of contents, go to *Selection*, then *create layer from selected features*. Add this to your map as another layer.
    b. Then follow the directions as listed in the "Clipping and Spatial Analysis" section (7 - 16) below.

Directions for using symbology: A query has been performed on the cropdata table in this geodatabase to determine the dominant crop type and crop group (by area) located in each section for symbology. The results of this query are populated in the SectionsWithCrops feature class table and the fields are labeled PrimaryCropType and PrimaryCropGroup. These fields provide an easy way to accurately symbolize the sections.

Directions for clipping and spatial analysis: ***Limitation Warning****—after clipping the original dataset to a defined area, such as a watershed, the clipped section data must be related back to the cropdata table (the relate is a "one to many") so the identify and query functions will work properly. As a reminder, use a "relate", not a "join". With a join, only one field record per section will be captured, so the data would be incomplete. To avoid this potentially serious error, use the "relate" only.* ***The new clipped dataset will include all the data in that section, so it's important to know that even if then new dataset clips off a portion of a section, all the data in the entire section will be shown.***

1. Open the Arc Toolbox from ArcMap.
2. Click on the **"+"** in front of Analysis tools, go to *Extract*, double-click on *clip*.
3. Input feature – browse and select the "SectionsWithCrops" feature class.
4. Clip feature – select the feature used to clip - such as a county, huc, or watershed.
5. Output feature class – browse to the 2009WSDACropDistribution.mdb, open the "CropSection" feature dataset, and name the new clipped section feature class. This puts the new clipped section feature class within the geodatabase, which can be deleted later in Arc Catalog®.
6. The new clipped section feature class should have automatically been added to the map - if it has not, add it now. You may now choose to uncheck or remove the original SectionsWithCrops feature class in the table of contents.
7. Right-click on the newly created section feature class in the table of contents window, go to *joins & relates*, then *relate*.
8. Choose "TRS" as the field the "relate" will be based on.
9. Choose "Cropdata" table to relate to this layer.
10. Choose "TRS" as the field in the related table.
11. Choose a name for the "relate" – default name relate1 is OK. This will become a temporary relate, and must be done each time you use this new feature class. You may also create a permanent relationship class within the geo-database if you desire and this will also dramatically increase the processing speed.
12. Then, use the *identify* button and querying function the same way as before.

Please refer to the software developer's (ESRI) website for further clarifications and answers to questions at http://www.esri.com/.

Please refer to WSDA's Natural Resource Assessment Section website for program and contact information. http://www.agr.wa.gov/PestFert/natresources/AgLandUse.aspx